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Aizat I. Urystumova  *

D. Serikbayev East Kazakhstan technical university, Ust-Kamenogorsk, Kazakhstan

Historical Evolution of Informal Education in Engineering Training: from Traditions to Modern Practices

ABSTRACT. This article examines the role and significance of non-formal education in the contemporary educational landscape and its growing importance in response to the demands of modern society. Non-formal education is considered an effective means of supporting intellectual, social, moral, emotional, physical, artistic, and professional development. The study analyzes the institutions involved in the provision of non-formal education, as well as their goals, objectives, and areas of implementation. The article presents a historical overview of the development of non-formal education, from early European educational traditions to current 21st-century practices. It explores the key principles, approaches, forms, advantages, and challenges associated with organizing non-formal learning. Particular attention is given to its role in preparing competitive, self-improving professionals capable of adapting to rapidly changing social and professional environments. The research also examines the increasing demand for non-formal education and its practical application within higher education institutions. Examples of additional educational opportunities for students, teachers, and university staff are discussed, including activities implemented through a university student club. The purpose of the study is to demonstrate the effectiveness of non-formal education in training modern, competitive specialists and fostering active individuals who contribute to societal development through continuous learning and personal growth.

KEYWORDS: non-formal education, additional education, professional competence, engineering specialists, students, practical training, comprehensive development.

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* Corresponding author: Urystumova Aizat Ishimbaevna, e-mail: aurystumova@edu.ektu.kz

Урюстюмова А.И.  *

Д. Серікбаев атындағы Шығыс Қазақстан техникалық университеті, Өскемен қ., Қазақстан

Инженерлік дайындықтағы бейресми білім берудің тарихи эволюциясы: дәстүрден қазіргі тәжірибеге дейін

АНДАТПА. Мақалада қазіргі білім беру саласындағы бейресми білім берудің орны анықталып, оның бүгінгі уақыт талабына байланысты маңыздылығы мен дамуы туралы сөз қозғалған. Бейресми білім беру адам өмірінің зияткерлік, әлеуметтік, рухани-адамгершілік, эмоционалды, физикалық көркем-музыкалық, әлеуметтік-педагогикалық, техникалық, туристік-өлкетану, жаратылыстану, дене шынықтыру-спорт, кәсіби т.б. салаларын ұйымдастыруына оң әсерін тигізетіндігіне мән берілген. Бейресми білім беруді ұйымдастырудың мекемелері мен оларды жүзеге асырудың мақсат, міндеттеріне талдау жасалған.

Мақала Еуропалық Университет дәстүрлерінен бастап ХХІ ғасырдың өзекті тенденцияларына дейінгі бейресми оқытудың қалыптасуы мен дамуына тарихи шолуды қамтиды. Бейресми білім беруді ұйымдастырудың ерекшеліктері, принциптері мен тәсілдері, білім берудің түрлері мен мысалдары, артықшылықтары мен қиындықтары зерттелген. Автор бейресми білім беруді тиімді ұйымдастыру арқылы бүгінгі заманға сай бәсекеге қабілетті кәсіби маман дайындаудың жолын ұсынады. Бұл әдіс қазіргі білімнің тиімді түрі болып табылатындығын және сол бойынша білім беруді ұйымдастырудың жолдарына тоқталады. Қазіргі қоғамдағы білім алудың ерекшеліктерін ескере отырып, бейресми білімге деген сұраныстардың артуы салдары зерттелген. Сонымен қатар бейресми білім берудің практикалық тұстарына мән беріліп, университет қабырғасындағы студенттерге, оқытушыларға және қызметкерлерге арналған қосымша білім беруді ұйымдастыру жолдары туралы баяндалған. Университет негізінде құрылған студенттік клуб негізінде жүзеге асырылатын тәжірибелерді талдауға ерекше назар аударылады.

Мақаланың мақсаты білім беру орындарында бейресми білім беру формаларын қолдана отырып, заман талабына сай, өзін-өзі жетілдірген, бәсекеге қабілетті мамандарды даярлаудың жолдарын ұйымдастырудың тиімділігін ашу. Бейресми білім беруді ұйымдастыру арқылы қоғамның дамуына белсенді ат салысатын тұлғаны қалыптастыру.

ТҮЙІН СӨЗДЕР: бейресми білім беру, қосымша білім беру, кәсіби құзіреттілік, инженерлік мамандар, білім алушылар, тәжірибелік оқыту, жан-жақты дамыту.

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* Хат-хабаршы авторы: Урюстюмова Айзат Ишимбаевна, e-mail: aurustyumova@edu.ektu.kz

Урюстюмова А.И.  *

Восточно-Казахстанский технический университет им. Д. Серикбаева, г. Усть-Каменогорск, Казахстан

Историческая эволюция неформального образования в инженерной подготовке: от традиций до современных практик

АННОТАЦИЯ. В статье определено место неформального образования в современной сфере образования, речь идет о его важности и развитии в связи с требованиями сегодняшнего времени. Особое внимание уделяется тому, что не-формальное образование оказывает положительное влияние на организацию интеллектуальной, социальной, духовно-нравственной, эмоциональной, физической художественно-музыкальной, социально-педагогической, технической, туристско-краеведческой, естественнонаучной, физкультурно-спортивной, профессиональной сфер жизни человека. Проведен анализ учреждений организации неформального образования и целей, задач их реал-изации.

В статью включает исторический обзор становления и развития неформального обучения, начиная с европейских университетских традиций и заканчивая актуальными тенденциями XXI века. Исследуются особенности, принципы и подходы к организации неформального образования, его основные формы и примеры, а также преимущества и возникающие трудности. Автор предлагает способ подготовки современного конкурентоспособного профессионала путем эффективной организации неформального образования. Этот метод указывает на то, что современное образование является эффективной формой образования и, следовательно, на пути организации образования. Изучены последствия возрастания спроса на неформальное образование с учетом особенностей получения образования в современном обществе. Также было уделено внимание практическим аспектам неформального образования, рассказано о путях организации дополнительного образования студентов, преподавателей и сотрудников в стенах университета. Особое внимание уделяется анализу практик, реализуемых в рамках студенческого клуба, действующего при университете.

Цель статьи раскрыть эффективность организации путей подготовки современных, самосовершенствованных, конкурентоспособных специалистов с использованием форм неформального образования в образовательных учреждениях. Формирование личности, активно участвующей в развитии общества через организацию неформального образования.

КЛЮЧЕВЫЕ СЛОВА: неформальное образование, дополнительное образование, профессиональная компетентность, инженерные специалисты, обучающиеся, практическое обучение, всестороннее развитие.

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* Автор-корреспондент: Урюстюмова Айзат Ишимбпевна, e-mail: auryustyumova@edu.ektu.kz

INTRODUCTION

Currently, in higher education institutions, it is important to have an equal balance of in-depth knowledge and corresponding practical skills in the field of professional education. The main feature of modern teaching approaches is that students not only master theoretical knowledge but also know how to implement it in practice – this is one of the skills required in the 21st century. It represents the skills model for training specialists in the 21st century. The integration of knowledge and practice characterizes a system of key competencies, such as the ability to choose from a wide range of solutions and actions, demonstrating that participants have mastered fundamental literacy combined with deep conceptual understanding. The required skills for training specialists in the 21st century cannot be called entirely new. For example, the skills of implementing and applying acquired knowledge in practice have been a reliable companion of human progress throughout the history of human development, from the making of tools in ancient times, agricultural achievements, and the invention of vaccines to contemporary research. Currently, methods for developing practical pathways of learning are being comprehensively considered, continuing these requirements. To implement this work, all interested parties – namely, preschool institutions, schools, vocational education institutions, and higher education institutions – have taken on commitments and are effectively implementing them.

In the process of effective teaching that integrates theory and practice, wide-ranging tasks are solved, positively influencing the learner's ability to work in various situations. Regardless of which learning pathways are used, the meaning of effective teaching is understood as creating conditions that positively influence the mastery of a profession or other human activities.

Today, there are sufficient institutions that implement theoretical knowledge in practice and organize various ways of education. These include not only traditional educational institutions but also creative-cognitive organizations and associations. However, among educational institutions, the responsibility for organizing any type of education, especially teaching theoretical knowledge in practice, falls on universities. Among the many functions performed by university teachers and staff, the most important is providing high-quality educational experience, participating in professional, university, and public work, and conducting research that contributes to the "public good" (Charlir, 2024). One of such additional learning pathways is the organization of non-formal education types in higher education institutions. Participation in non-formal education is a central factor for success in economic growth and social and personal development. This is particularly important today, as labor markets and work processes are rapidly changing in most industrially developed countries (Lischewski, 2020). Before discussing the organization of non-formal education forms, their importance, and characteristics, it is necessary to clarify what non-formal education is.

Non-formal education is a type of information and knowledge distinct from traditional forms of learning. Non-formal education often covers many different areas and may result in certificates or attestations of completion. Organizations offering non-formal education include clubs, circles, various courses, trainings, short programs, master classes, seminars, online courses, and others. Such organizations can be established in schools, higher education institutions, theaters, museums, libraries, cultural centers, sports complexes, and other institutions, and they may implement non-formal education.

The main goal of non-formal education is to improve a person's qualifications in various fields, acquire additional knowledge, and also to create the necessary conditions for mastering spiritual, cultural, economic, political, informational, technological, and other forms of knowledge relevant to the times. The advantage of non-formal education types is that they allow individuals to develop personally regardless of age (young, adult, or elderly), field of activity, and professional competencies. Additionally, one of the main priorities of non-formal education is its accessibility (Informal learning Encyclopedia, 2024).

According to UNESCO's International Standard Classification of Education, non-formal qualification "refers to a qualification awarded as a result of achieving the learning objectives of an educational program in the non-formal education system, which is not recognized by the relevant national education authorities and is not equivalent to qualifications in the formal education system."

Typically, these include various life, professional, and socio-cultural skills: leadership competencies, organizational abilities, intercultural communication skills, and others.

Non-formal education plays an important role in personal development and social progress. Its importance lies in the opportunity to acquire knowledge and grow outside traditional educational programs and institutions. Through non-formal education, additional learning contributes to skill development, knowledge enrichment, and broadening horizons. In turn, this contributes to personal achievements and socio-cultural and economic growth. Therefore, non-formal education enriches the learning experience and, by providing opportunities for lifelong learning and development through additional education, is an integral part of modern educational platforms. Non-formal education can be understood as any knowledge acquired outside the formal education system. It is not necessarily confirmed by a diploma or certificate of completion, and institutions engaged in non-formal education are not required to have state licenses for conducting programs and courses.

Considering these positive aspects of non-formal education in personal development, it can be applied to training specialists in any field. This is because all professionals are part of society and its constituents. Thus, alongside acquiring knowledge in their specialty, individuals can develop the skills necessary for their social, economic, political, cultural, and other societal activities through additional education, i.e., non-formal education.

Non-formal education supports individuals in achieving goals in various fields through educational institutions or other types of organizations, contributing to self-realization. Currently, the younger generation lacks motor, emotional, and social skills. They appear aggressive, anxious, dependent, and uncreative. This is one of the very important reasons for children, adolescents, and young people to engage in extracurricular activities (Terrazas, 2021).

After a specialist receives education in their field, they find employment. In the course of their work, situations often arise where they need to express their opinions and implement new initiatives. Such readiness can be achieved through types of non-formal education, which reveal various facets of personality and contribute to a certain degree of freedom in society. For example, various clubs that develop leadership in individuals can be mentioned, such as acting clubs in theaters, debate clubs, and others. Within the framework of leadership programs, such clubs consider all leaders and participating members as educational leaders. Furthermore, taking into account the priority direction of the leadership program, specialists who have mastered it become leaders who implement the education of learners under their supervision. The concept of teaching management and leadership is based on individuals who have great untapped potential among leaders. This can be seen only through work accompanied by innovation and joint professional development. Such work should proceed in parallel at all levels of educational institutions and be included in the non-formal education plans of students, employees, and adults in other fields. Such views have been known since the last century. For example, the concept of leadership in teaching was discussed in the Hertfordshire Cambridge Network project supported by David Frost and the University of Cambridge, regarding the development of leadership qualities. The benefits and essence of leadership are skills aimed at achieving high results comparable to intellectual learning standards. Today, in the educational process, work, and profession, more is required than just intellectual achievements limited to evaluating results and complicating cognitive standards. Today, leadership in education and work allows for the learner's emotional-moral literacy, emotional-regular learning, and comprehensive development. The most important focus here is on improving the quality of education. In today's understanding, leadership is not something exclusive to employees in managerial positions. As modern social research results show, leadership is widely used in the life of ordinary people in society. For example, in the family institution, in expressing political views, etc. According to researchers of leadership issues, in changing social and economic conditions, leadership is also becoming more complex and is becoming one of the qualities required of a person today. Therefore, various non-formal educational organizations are currently working to develop leadership qualities in individuals. And this can also be said to be a requirement of the times.

In modern European higher education institutions, specifically according to research from colleges in England, the effectiveness of institutions that continuously improve and practically

develop leadership aimed at enhancing the quality of teaching and learning has been determined. Scholars believe that in any activity, leadership is a tool for improving practice. And leadership aimed at additional education is exactly that. Learning-oriented leadership is focused on the educational process and the outcomes of students, employees, with the aim of achieving high-quality education.

People acquire knowledge by using dialogue methods, such as discussion, debate, collaboration, and co-construction of knowledge, forming understanding and skills. Social-constructivist learning also allows for the integration of skills and deeper understanding. All methods focus on:

- learner activity;
- implementing activities in accordance with expected outcomes;
- the importance of feedback;
- opportunities for experience and integration.

The significance of this lies in the ability to formulate concrete conclusions about how to create a learning environment to increase learning opportunities.

Much can be said about the importance and characteristics of organizing non-formal education. Its development, as practice currently shows, is a requirement of the times. Therefore, much attention is now being paid to this area. Developing non-formal education positively affects the socio-economic, political, cultural-spiritual, and other spheres of society. For example, non-formal education plays a decisive role in personal development and social progress. The importance of non-formal education lies in the opportunity to acquire knowledge and grow outside formal educational programs and institutions. This contributes to skill development, knowledge enrichment, and broadening horizons. In turn, this contributes to personal success and socio-cultural diversity. Therefore, non-formal education enriches the learning experience and, by providing opportunities for lifelong learning and development, is an integral part of the modern educational landscape.

The International Education Corporation (IEC) offers various opportunities for non-formal education by introducing the following aspects:

- Courses and master classes. That is, organizing courses and master classes in various subjects and fields of knowledge. Through this, students and pupils can learn foreign languages, acquire informational and technical skills, and master arts and other interesting fields.
- Educational projects and initiatives. Universities currently participate in various educational projects and initiatives that promote knowledge and cultural exchange. This means that within such projects and initiatives, lectures, exhibitions, and forums can be organized for students.
- Clubs and community organizations. They support many clubs and community organizations, creating a platform for knowledge and experience exchange between students and teachers. The effectiveness of implementing such organizations alongside traditional education has been proven.

Thus, the International Education Corporation (IEC) contributes to the personal development and enrichment of knowledge of students and young people in Kazakhstan, offering various opportunities and creating many conditions for non-formal education.

Currently, although non-formal education is a relatively new concept in Kazakhstan, it has already become widely known. There is a reason for this. Upon closer examination, its rapid popularity and demand can be attributed to its effectiveness and advantages. One of the first and most important advantages is the accessibility of non-formal education. As mentioned above, regardless of age, gender, or education level, training is universally accessible. That is, everyone has the opportunity to learn. Various people may need non-formal education, not only those with higher education who wish to improve their qualifications, but also those with different life circumstances, such as young mothers returning to work and needing to update their knowledge, or elderly people wanting to keep up with the times. This means this advantage in education is convenient and effective for people.

Another advantage is the effectiveness of the training. Accessibility and voluntariness are the main principles. If organizers use various teaching models, develop specific programs based on the needs and interests of learners, this further increases the effectiveness of training. Non-formal

education is a new opportunity for people with different social statuses and workloads. Now, acquiring knowledge, improving education, or enhancing skills in a particular field is accessible and convenient.

Non-formal education is a type of additional education. To recognize the results of additional education as a form of education aimed at comprehensively satisfying educational needs for a person's intellectual, spiritual, moral, physical, and professional development, it enters the general system of quality assurance in education. Additionally, additional education is implemented in various areas that satisfy individual personal development needs. For example, intellectual, social, spiritual-moral, emotional, physical, artistic-musical, socio-pedagogical, technical, tourist-local history, natural science, physical education-sports, and professional.

LITERATURE REVIEW

Scientific works in the last decade offer an understanding of the theory, practice, and impact of non-formal education in various contexts, including its role in promoting social change, expanding opportunities, and developing individuals. Before comprehensively analyzing non-formal education in the current information field, it is necessary to briefly review research from the late 20th and early 21st centuries that laid the theoretical foundations for this issue.

In the 1980s and 1990s, international conferences and symposia were held on issues of improving the quality of educational outcomes through the transformation of education.

In 1981, the first national conference, "Public Education as a Concept for a New Society," was held in Australia. In the reports of conference participants, the idea was expressed that education should become the main mechanism ensuring social change, forming new policies, and creating a developed economy. At the same time, education was considered from a social perspective, and it was concluded that it should effectively respond to events such as population growth, social inequality, environmental damage, economic crises, and pandemics.

Governmental documents began to be adopted at interstate and state levels, revealing the depth of established problems in education. For example, the report "A Nation at Risk" published in 1983 by the US National Commission on Excellence in Education showed that the level of illiteracy among young people was still high in the 1980s. To understand why this situation developed, the report presented the results of an assessment of the quality of teaching and learning in US public and private schools, colleges, and universities. The assessment was based on comparing American schools and colleges with those of other developed countries, as well as studying the relationship between college requirements and the performance of secondary school students. The report also reveals the connection between student educational achievement and the orientation of the educational trajectory in school. Much attention is given to determining how the major social and educational changes of the last quarter of the century have affected student achievement (Brennan, 2023).

Let us turn to a brief analysis of some scientific works covering education issues in the late 20th century.

The idea of programmatic documents at the state level that education is the key to economic development is reflected in E.V. McGregor's work "Economic Development and Popular Education: Strategies and Standards. Education Policy" (McGregor, 1994).

A number of studies addressed the issues of developing education systems. Such development was aimed at forming the following skills in learners: the ability to use electronic technologies, systematize and apply information, think critically and creatively, evaluate the results of their thinking, establish effective communication, and especially collaborate in different cultural environments.

The issues discussed in the scientific field in the 20th century were wide-ranging: from current problems of education and the need for its transformation to describing mechanisms for implementing these changes. The idea that education should be aimed at developing a personality that can influence society is systematically encountered in the analyzed works. And personal development is impossible without independent activity in acquiring knowledge and experience outside traditional learning conditions: in daily life, in interaction with the environment, in communication with other people, and when mastering new knowledge and skills through practice. To describe such a personal development process, the works used the concept of "informal education" – a type of learning determined by the interests, needs, and environment of the learner; the process of acquiring knowledge, skills, and experience outside formal educational institutions such as schools or universities, which occurs on the basis of independent activity and natural interaction with the environment.

As a result of this integration, "non-formal education" was formed, which combines the advantages of traditional and informal education, preparing people to live in a changing society and helping solve modern problems. By recognizing the strengths of both approaches and utilizing them, the academic community can

create a more holistic and effective educational environment that better prepares learners for the challenges and opportunities of the 21st century (Bentley, 1998).

Thus, education at the turn of the 20th–21st centuries is a complex process covering various aspects of teaching, adaptation to new technologies, and changes in society. In recent decades, a significant diversity of educational forms has been observed, associated with socio-cultural changes and technological breakthroughs. The development of internet technologies allowed educational institutions to expand their audiences and organize teaching independent of time and place. Due to the growing popularity of the individual approach to teaching, the shift from the traditional classroom model to flexible methods allowed for greater emphasis on individual needs and pace, personalized educational programs, online self-learning platforms, and adaptive learning technologies. In recent years, there has been an increasing interest in learning types based on experience and practical skills.

MATERIALS AND METHODS

In writing the topic, the documents "Non-formal Education. International Education Corporation" and "Guidelines for Quality Assurance in Additional Education" were studied, and based on these materials, the activities and goals of organizations currently implementing non-formal education were analyzed. During the research, methods of systematization, description, comparison, and analysis were used.

RESULTS AND DISCUSSION

Considering the current necessity and importance of non-formal education in training specialists, as discussed above, we will examine the types of non-formal education organized for engineering specialists at D. Serikbayev East Kazakhstan Technical University. D. Serikbayev East Kazakhstan Technical University implements non-formal education in accordance with the regulations on additional education and non-formal education of the Republic of Kazakhstan. Within the university, there are various non-formal educational organizations for students, teachers, staff, and applicants: clubs, circles, courses, trainings, short programs, master classes, seminars, online courses, sports sections, and others (Engin Unguren, 2020). Their main goal is to improve the qualifications of participants in various fields, acquire additional knowledge, and create the necessary conditions for mastering spiritual, cultural, economic, political, informational, technological, and other knowledge relevant to the times, thus training competitive specialists. Since students at the university are primarily studying in technical specialties, alongside training them as qualified specialists, it is also important to educate them as citizens who are accustomed to socio-social life, can express themselves freely, respect their homeland, and are patriotic. Therefore, the educational institution offers future engineers many additional educational opportunities and various clubs, courses, circles, sports sections, and trainings for self-development. One of the extracurricular activities within the university is the student club. Student clubs are one of the important elements of the university's educational process. Student clubs are groups voluntarily formed to allow students to participate in scientific, social, cultural, artistic, and sports activities on campus outside of class time.

As an example, let us consider the "Altyn Besik – Muзtau" student club, established in 2017 at the university. The club provides students with additional, non-formal education based on a practical orientation. The club's philosophy:

1. focus on the personal interests and inclinations of students and teachers;
2. maximum diversity of topics and work formats;
3. informality and openness.

The club's goals and objectives:

- to educate a patriotic citizen who knows and loves their multi-ethnic region, its material and spiritual culture, the unique nature and history of Altai, and wishes to actively participate in its development;

- as one of the university's strategic goals, to train qualified specialists capable of adapting to the industrial development and socio-cultural conditions and peculiarities of Altai for the full and successful employment of EKTU graduates.

Areas of club work:

- historical and local history direction;
- cultural direction;
- spiritual and moral direction;
- patriotic direction.

Objectives:

- familiarization with history, cultural heritage, and modern life of Altai in the context of the Kazakhstani socio-cultural space;
- study of regional development problems;
- accumulation of skills in independent productive activity that allows solving tasks related to the fate of Altai at a personal level;
- development and stimulation of cognitive activity;
- orientation in solving issues of choosing a further type of education and profession;
- formation of a personal-value attitude towards the past and present of one's homeland;
- development of civic qualities, patriotic attitude towards the great and small homeland;
- formation of tolerance and tolerant behavior in the conditions of polyethnicity, polyconfessionality, and multiculturalism of the region;
- promotion of social values (work, patriotism, service to the homeland, responsibility, active life and civic position);
- fostering a responsible attitude towards the cultural and historical heritage of Altai.

These are the general strategic goals and objectives of the club. At the beginning of each academic year, an annual plan is created and fully implemented. In recent years, in accordance with student requests, non-formal education forms that increase their interests have been organized. Especially significant are events related to increasing knowledge in the practical application of theoretical knowledge about our history and the material and spiritual culture of our people. In this regard, the club organizes joint events with cultural institutions in the city. A leader among these is the joint events with the "Architectural-Ethnographic and Natural-Landscape Museum-Reserve" of the East Kazakhstan Region's Department of Culture. In January 2024, a Memorandum of Cooperation and Interaction was signed between D. Serikbayev East Kazakhstan Technical University Non-Commercial Joint-Stock Company and the "Architectural-Ethnographic and Natural-Landscape Museum-Reserve" of the East Kazakhstan Region's Department of Culture. Since then, joint activities for the development and organization of non-formal education have been actively carried out.

On March 26, 2024, members of the "Altyn Besik – Muзtau" club from the Department of History of Kazakhstan and Socio-Political Sciences at D. Serikbayev EKTU, along with university students, visited the "East Kazakhstan Regional Architectural-Ethnographic and Natural-Landscape Museum" for the "Great Day of the Nation – Nauryz" holiday. During the event, scenes about Kazakh national games, traditions, and customs were presented, with student participation. Information about the main concepts, traditions, national games related to the "Nauryz" holiday was provided. Additionally, students played Kazakh national games such as "bilek synasu" (arm wrestling) and "oramal tartu" (towel pulling), and answered interesting questions prepared by the hosts according to tradition. The organized event proved to be a very effective method of non-formal education for students. Students toured the museum's ethnographic halls and, through scenes about national games, traditions, and customs, became acquainted with the historical-ethnographic values and national artifacts of the Kazakh people. The event was held at a high level, leaving an unforgettable impression on participants and sparking their interest.

Such joint events between the East Kazakhstan Regional Architectural-Ethnographic and Natural-Landscape Museum-Reserve and the club continued. On February 2, 2024, students of the "Altyn Besik – Muзtau" club, together with the mentioned museum, held a master class-lecture. The master class included workshops on "Patchwork quilting" and "Decorative jewelry" crafts, where club girls learned methods of making ornaments, decorative pillows, patchwork, and bracelets. The workshops were conducted by renowned city masters A.T. Umbetova and A. Kuzmina, who taught

the club girls how to cut ornaments, make patchwork, and create bracelets. We consider this event a wonderful way for students to receive non-formal education in national values outside the traditional form of university education.

The university and the museum continued to hold joint events on non-formal education every month throughout the year. On April 25, students of D. Serikbayev EKTU visited the "East Kazakhstan Regional Architectural-Ethnographic and Natural-Landscape Museum" for a creative master class. The master class was conducted by the city's renowned craftsman N. Yeskhozhin, who held a workshop on wood carving and making various items from iron. The event proved to be an important and highly educational non-formal learning type for the club's male students. At the creative master class, all students learned to draw on metal materials using special tools, and to create images using axes and hammers. Additionally, they became acquainted with products made from wood, bone, and leather, traditionally mastered by Kazakh craftsmen, and received information about manufacturing techniques. The organized event promoted our national values, contributed greatly to learning and mastering them, and aroused high interest among students. Furthermore, this event also served as practical experience for students studying in engineering fields.

The collaboration between D. Serikbayev East Kazakhstan Technical University and the "Architectural-Ethnographic and Natural-Landscape Museum-Reserve" of the East Kazakhstan Region's Department of Culture in providing additional, non-traditional education to students yielded high results and served as a model for the integration of non-formal education. We are confident that these events will continue in the future and help students achieve great success in any field.

Additionally, the university continuously organizes students' participation in other social and cultural events alongside the educational process. For example, club students attend performances and films related to the history of our country and the unique culture of our people at theaters and cinemas.

On November 17, 2022, students of the "Altyn Besik – Muztau" local history club, together with the club leader, attended the play "A.L.Zh.I.R." performed at the East Kazakhstan Regional Drama Theater. This event introduced one of the most difficult periods in the history of the homeland and provided an opportunity to broaden knowledge on the subject. Taking students to the theater is of great importance because theater is a true environment for moral education and edification. A student who visits this sacred art center learns culture and sees life on stage. Moreover, collective theatrical activity has a holistic impact on a person's personality, is action-oriented, activates all their capabilities, contributes to the independent creative development of all leading mental processes, self-awareness, and self-expression. It creates conditions for the student's socialization, strengthens their adaptation abilities, and corrects communicative deviations. At East Kazakhstan Technical University, there are students participating in acting and stage skills clubs at the East Kazakhstan Regional Drama Theater.

Another form of non-formal education is taking students to screenings of domestic historical films. This is because, today, one of the educational models that promotes our nation, elevates our spirit, and strengthens our national confidence is the mass media. It is known that today's generation quickly absorbs any type of knowledge through media and mass media. Therefore, it is necessary to improve educational forms in new directions, update educational content, apply appropriate methods and techniques, and establish methodological foundations. Life experience proves that education is needed by every person throughout life. Furthermore, the use of advanced technologies is an important link in the renewal of education. Therefore, organizing students' attendance at films related to national history is also an important form of non-formal education. Such events are organized within the framework of the "Altyn Besik – Muztau" historical and local history student club and are producing good results. Club members attended the film "Oyan, Kazakh!" based on domestic history. During the event, students gained information about difficult but important moments in our history, learned about outstanding historical figures of our country, and had the opportunity to increase their respect for them. The periods and themes depicted were analyzed with club students, and their opinions were heard. This event also contributed to strengthening the unity and solidarity of club members.

CONCLUSION

In conclusion, considering that the organization of non-formal education mentioned above is a requirement of the times, it can be seen that D. Serikbayev University is implementing these activities at a high level. In particular, it can be said that the university is conducting at a high level the ways of organizing non-formal education types aimed at the comprehensive formation and adaptation of engineering specialists. The examples given above are only information provided within the framework of one club. Within the university, it is necessary to mention many other courses, trainings, clubs, circles, short programs, master classes, seminars, online courses, and sports sections that organize various types of non-formal education and create significant conditions for training comprehensive, competitive specialists. These processes pay great attention to the development of students' creative abilities, formation of patriotic spirit, improvement of communicative skills, and preparation for professional activities. Non-formal education at EKTU is an integral part of the educational process and makes a significant contribution to training competitive specialists ready for successful careers and active civic positions.

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Information about the author

Uryustyumova Aizat Ishimbaevna – Senior Lecturer, master of Arts in Humanities, D. Serikbayev East Kazakhstan technical university, Ust-Kamenogorsk, Kazakhstan, e-mail: auryustyumova@edu.ektu.kz, ORCID: <https://orcid.org/0000-0002-7189-1053>

Автор туралы мәліметтер

Урюстюмова Айзат Ишимбаевна – аға оқытушы, гуманитарлық ғылымдар магистрі, Д. Серікбаев атындағы Шығыс Қазақстан техникалық университеті, Өскемен қ., Қазақстан, e-mail: auryustyumova@edu.ektu.kz, ORCID: <https://orcid.org/0000-0002-7189-1053>

Сведения об авторе

Урюстюмова Айзат Ишимбаевна – старший преподаватель, магистр гуманитарных наук, Восточно-Казахстанский технический университет им. Д. Серикбаева, г. Усть-Каменогорск, Казахстан, e-mail: auryustyumova@edu.ektu.kz, ORCID: <https://orcid.org/0000-0002-7189-1053>